

CLAIMS

What is claimed is:

1. An apparatus for time maintenance in a satellite positioning system receiver configured to receive data from a plurality of satellites, the apparatus comprising:

means for maintaining stored timing data for use by the receiver;

means associated with the receiver for using the stored timing data to acquire communication signals from at least one satellite vehicle;

processing means for deriving a first portion of timing information using the acquired communication signals, the processing means deriving a second portion of timing information using the stored timing; and

means for combining the first and second portions to determine a real time estimate.

2. The apparatus of claim 1, further comprising means for performing a position fix using the real time estimate.

3. The apparatus of claim 2 wherein the position fix is performed using almanac data.

4. The apparatus of claim 3, further comprising means for determining a new real time estimate.

5. The apparatus of claim 2 wherein the position fix is performed using ephemeris data.

6. The apparatus of claim 1 wherein the means for storing timing information comprises means for storing data related to a code period into a current data bit.

7. The apparatus of claim 1 wherein the means for storing timing information comprises means for storing data related to a data bit into a current week.

8. The apparatus of claim 1 wherein the receiver is selectively operated in an active mode and a sleep mode and the means for maintaining stored timing data maintains the stored timing data in both the active mode and the sleep mode, and the means associated with the receiver for using the stored timing data to acquire communication signals using the stored timing data to acquire communication signals occurring upon entry from the sleep mode into the active mode.

9. A method for time maintenance in a satellite positioning system receiver configured to receive data from a plurality of satellites, the method comprising:

maintaining stored timing data;

using the stored timing data to acquire communication signals from at least one satellite vehicle;

using the acquired communication signals to derive a first portion of timing information;

using the stored timing data to derive a second portion of timing information; and

combining the first and second portions to determine a real time estimate.

10. The method of claim 9, further comprising performing a position fix using the real time estimate.

11. The method of claim 10 wherein the position fix is performed using almanac data.

12. The method of claim 11 wherein the position fix comprises determining a new real time estimate.

13. The method of claim 10 wherein the position fix is performed using ephemeris data.

14. The method of claim 13 wherein the position fix comprises determining a new real time estimate.
15. The method of claim 9 wherein the stored timing information comprises a code period into a current data bit.
16. The method of claim 9 wherein the stored timing information comprises a data bit into a current week.
17. The method of claim 9 wherein the stored timing data is based on a plurality of parameters and almanac data is used to provide an indication of at least one of the plurality of parameters.
18. The method of claim 17 wherein the stored timing data is based on code phase, a code period into a current bit and a bit into a current week.
19. The method of claim 18 wherein deriving the first portion of timing data comprises measuring the code phase based on the acquired communication signals.
20. The method of claim 18 wherein deriving the second portion of timing data comprises using the code phase based on the acquired communication signals to determine the accuracy of the stored timing data, the stored timing data comprising at least one of the code period into the current bit and the bit into the current week.
21. The method of claim 9 wherein the receiver is selectively operated in an active mode and a sleep mode and maintaining stored timing data occurring in both the active mode and the sleep mode, and using the stored timing data to acquire communication signals occurring upon entry from the sleep mode into the active mode.